



Gen² Property Limited

Land near Great Chart Primary School

Updated Ecological Surveys

APRIL 2017

RSK



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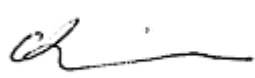
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Gen² Property Limited

Land near Great Chart Primary School -Updated Ecological Surveys

856993 (00)

EXECUTIVE SUMMARY

1. This report presents the results of a preliminary ecological appraisal, an assessment for Great Crested Newts using the Habitat Suitability Index (HSI), eDNA surveys and reptile surveys undertaken in April 2017. The purpose was to assess the ecological value of the land and identify any ecological constraints associated with the site.
2. Previous surveys of the site were undertaken by Jacobs in 2008 and 2010 but the data is now out of date and repeat surveys were required. The proposals are to regenerate the site and build twelve residential units..
3. There are five statutory or non-statutory designated sites within 1 km of the site boundary.
4. The site is located adjacent to the Great Chart School in Ashford, Kent and comprises poor semi-improved grassland and dense scrub. These habitats contain plant species which are common and widespread throughout the UK.
5. Reptile surveys of the site were carried out from 3 April to 26 April. The surveys identified a low population of Common Lizard (*Zootoca vivipara*). Previous surveys undertaken by Jacobs in 2010 identified a low population of Common Lizard and Slow Worm (*Anguis fragilis*) and a medium population of Grass Snake (*Natrix natrix*). Mitigation for these species is discussed in Section 4.2.
6. Of the six ponds identified within 500m of the site only two were considered to have suitable conditions for Great Crested Newts (*Triturus cristatus*). Environmental DNA surveys of these ponds were undertaken and returned negative results. No further surveys or mitigation for this species is required.
7. The site provides habitat suitable for foraging bats, although we assess its overall potential as low value. Further surveys are proposed in Section 4.2.
8. The areas of dense scrub provide suitable habitat for nesting birds, if applicable to the development proposals all vegetation or building removal should be undertaken outside the nesting season (March to August inclusive) or if this is not possible then under a watching brief from a suitably qualified ecologist.
9. No field signs of Badger (*Meles meles*) were found however due to the dense scrub present we suggest that the site is fully searched for Badger setts when the scrub is cleared.

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1 INTRODUCTION

1.1 Purpose of this report

This report presents the results of a Preliminary Ecological Appraisal (PEA), Great Crested Newt and reptile surveys at land near Great Chart Primary School, Ashford Kent where a twelve unit housing development is proposed by Gen² Property Limited. These surveys were previously undertaken by Jacobs in 2008 and 2010 but updated information is now required for an application to the local planning authority in May 2017.

1.2 Ecological Context

The site (c. 0.56 hectares) is located in a suburban area of Ashford, Kent (Ordnance Survey grid reference TQ 989 414). To the north and west lies Great Chart Primary School which comprises school buildings, areas of hard standing and playing fields. There are also smaller areas of public green space and private gardens. To the east and south the site is bounded by large areas of residential developments.

1.3 Structure of this Report

The remainder of this report is structured as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the survey results;
- *Section 4* evaluates the results;
- *Section 5* lists the references;
- *Section 6* provides the figures;
- *Section 7* provides the plates;

- *Appendix A* explains the protected species legislation;
- *Appendix B* presents the target notes;
- *Appendix C* provides details of noteworthy species;
- *Appendix D* provides details of the abbreviations used in the text;
- *Appendix E* provides the eDNA laboratory report; and
- *Appendix F* provides the full reptile survey results.

2 METHODS

2.1 Background Data Search

A search was made in March 2017 for reference materials relating to the ecology of the Ashford site, and a list of sources is given in *Table 1*.

Table 1: Data Sources

Information Obtained	Available From
Protected and Noteworthy species-records	Kent and Medway Biological Record Centre
Designated site locations and citations	Natural England website
Designated site locations and citations	Kent and Medway Biological Record Centre
Designated site information	Ashford Borough Council website http://www.ashford.gov.uk
Designated site information	Kentish Stour Countryside Partnership http://www.kentishstour.org.uk/major-projects/ashford-green-corridor-2/
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the LBAP	Kent Local Biodiversity Action Plan website http://www.kentbap.org.uk/

A search was made for information on statutory designated sites (often internationally and nationally important sites for ecology) within 2 km of the site boundary and non-statutory designated sites (often important in a local context) within 1 km. A search was also made for records of noteworthy species within 1 km of the site boundary. Species included in the search parameters are:

- European protected species (listed on *Schedules 2 and 5 of The Conservation of Habitats and Species (Amendment) Regulations 2012*);
- nationally protected species under *Schedules 1, 5 and 8 of The Wildlife & Countryside Act 1981* and *The Protection of Badgers Act 1992*;
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN 2001 Red List*
- all species listed on the RSPB *Birds of Conservation Concern 4* as Red or Amber;
- Nationally Rare or Nationally Scarce species;
- Notable invertebrates; and

- species of Principal Importance under *The Natural Environment and Rural Communities (NERC) Act (2006)* or are Priority Species under the Local Biodiversity Action Plan.

2.2 Phase 1 Habitat Survey

2.2.1 General

The survey was carried out by Julie Powell, a Principal Ecological Consultant, on 7 April 2017. She is a Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has over fifteen years experience of ecological consultancy.

2.2.2 Phase 1 Habitat Survey

The habitat survey centred on the Phase 1 Habitat Survey approach (Joint Nature Conservation Committee 2010) as extended for use in Environmental Impact Assessments (Institute of Environmental Assessment 1995). This involves the following elements:

- Habitat mapping using a set of standard colour codes to indicate habitat types on a Phase 1 Habitat Map.
- Description of features of possible ecological or nature conservation interest in notes relating to numbered locations on the Phase 1 Habitat Map, called 'Target Notes'.

Basic Phase 1 Habitat Survey methods are described in detail in Joint Nature Conservation Committee (JNCC 2010). The extension of the Phase 1 habitat survey to Preliminary Ecological Appraisal are given in detail in CIEEM (2013).

Plant nomenclature in this report follows Stace (2010) for native and naturalised species of vascular plant and mosses and liverworts follow Hill *et al.* (2008). Introduced species and garden varieties were identified using the relevant texts. Plant names in the text are given with scientific names first, followed by the English name in brackets.

2.2.3 Habitat Assessment for Protected Vertebrates

2.2.4 General

Taking into account the location and habitats at the site alongside previous survey information, an assessment was carried out for:

- Badgers;
- bat species (foraging, commuting and roosting); and
- nesting birds
- reptiles (detailed surveys undertaken concurrently)
- Great Crested Newts (detailed surveys undertaken concurrently)

Further details of the assessment methods are given below.

2.2.5 Badgers

An initial assessment was carried out to identify areas that might be used by Badgers for commuting, foraging and sett-building. Signs of Badger activity include setts, tracks, footprints, hairs, feeding signs and latrines.

2.2.6 Bats

Habitats were assessed for their suitability for foraging or commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects, such as woodland, scrub, the river and species-rich or rough grassland.

Individual trees were not assessed for bat potential, but consideration was given to potential effects of the proposals on bat roosts in trees.

If any definite signs of bats or other evidence had been found (such as actual sightings, droppings, urine stains, odour, scratch marks, grease stains and feeding remains), they would have been recorded, though finding such evidence is highly unlikely at this level of survey and at the time of year the survey was undertaken.

2.2.7 Nesting Birds

The site was assessed in terms of its suitability for nesting birds. Birds nest in a wide variety of habitats including scrub woodland, hedges and trees, as well as on open ground and in man-made structures.

2.2.8 Constraints

The presence of dense scrub meant that the site could not be fully searched for Badger setts.

2.3 Great Crested Newt

2.3.1 Habitat Suitability Index

An HSI survey to assess the suitability of water bodies for Great Crested Newts was carried out by RSK on 18 April 2017.

Six water bodies were previously identified within the survey area (Jacobs, 2010) using aerial photography, maps and walkover surveys. RSK re-visited the sites of these water bodies in April 2017 (*Figure 3*) to reassess their suitability for Great Crested Newts using a Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000), which is a derived from systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);

- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored using field and desk-based survey. These ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000) and a HSI result is calculated using the following formula:

$$\text{HSI} = (\text{SI1} \times \text{SI2} \times \text{SI3} \times \text{SI4} \times \text{SI5} \times \text{SI6} \times \text{SI7} \times \text{SI8} \times \text{SI9} \times \text{SI10})^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define water body suitability for Great Crested Newts according to the following categories:

- HSI <0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent

There is a positive correlation between HSI scores and presence and abundance of Great Crested Newts in water bodies. Generally, water bodies with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that any water body with a high HSI will support newts in high populations, or that any water body with a low score will support low numbers of newts or no newts at all.

2.3.2 Environmental DNA Sampling (eDNA)

2.3.2.1 General

The surveys were carried out by Tanith Cook, a Senior Ecological Consultant, Full member of CIEEM (MCIEEM) and a Chartered Ecologist (CEcol). Tanith was accompanied by Jade Brennan, an Assistant Ecologist. Tanith holds a Natural England licence allowing the disturbance of Great Crested Newts for the purposes of survey in all counties of England (2015-19237-CLS-CLS).

2.3.2.2 Survey Technique

This survey technique involves analysing water samples to confirm the presence or absence of Great Crested Newt DNA (which can be naturally shed by newts, through skin secretions, excrement etc., when in water bodies). Great Crested Newt e-DNA testing was undertaken on two water bodies (Pond 2 and Moat 6). The Natural England

sampling protocol dictates that water samples are collected between mid April and June and therefore the sample date of 19 April 2017 falls within this accepted timeframe.

Sampling was undertaken in line with published guidelines (Biggs *et al* 2014). A total of 20 samples were taken from each waterbody, whilst being careful not to enter the water and contaminate the sample. The locations of samples were spaced evenly around the water body margin. However, sampling locations targeted the vegetated areas which may be used during egg laying and open water areas which newts may use for displaying.

The samples were then collected into a single sample bag and gently aggravated to homogenize the samples before six sub-samples were taken and preserved in ethanol based preservative. Samples were then sent to the laboratory for analysis.

2.3.3 Constraints

Surveyors were able to access only 40% of Pond 2's shoreline however samples were taken from 3 sides of the pond. Moat 6 was only accessible from one bank (50% of the shoreline) as the moat is bounded by a wall on one side, however the samples taken were well distributed. We do not believe that these constraints are significant or impact upon the validity of the eDNA result.

2.4 Reptiles

2.4.1 Transect survey

Natural England's standing advice for reptile survey now includes a transect survey designed to incorporate the areas of habitat most suitable for reptiles. Surveyors search for basking animals on areas such as banks, piles of wood and on the edges of woodland. RSK combined the day time searches with the artificial refuge surveys as below.

2.4.2 Artificial Refuge Survey

The standard method for detecting reptiles is to use reptile 'tinning' surveys. Artificial refuges (roofing felt tiles c 0.5 m²) were placed in the areas that were identified as suitable for reptiles. The felt tiles attract reptiles, which use them for shelter and to aid temperature regulation, which allows surveyors to find reptiles that would otherwise be widely dispersed and well-hidden.

Reptile surveys were carried out in April 2017 in the reptile active season. Twenty-five tins were placed on the site (*Figure 4*). Tins were checked for reptiles on seven occasions during suitable weather (ideally in bright sunshine between the hours of 0830 to 1100 and 1600 to 1830 with air temperatures between 9 and 15°C, or if there is hazy or intermittent sunshine and little wind then between 9 and 18°C, not during rain) (Froglife, 1999).

When checking tins, a general watch was kept for other signs of reptiles, *e.g.* Grass Snake eggs, excrement or sloughed skins (which are often found beneath refuges).

2.4.3 Population Assessment

Population estimates have been made following best practice guidelines issued by the *Herpetofauna Groups of Britain and Ireland* (HGBI 1998). The estimates are placed into size classes shown in *Table 2*. The size classes are determined on the basis of the maximum number of each species observed during one reptile survey conducted on one day in suitable weather conditions. The population class determines the number of days of trapping that would be needed to clear the site of reptiles.

Table 2: Population classification according to HGBI guidelines

Species	Low Population	Medium Population	High Population
Adder	<2/ha	2-4/ha	> 4/ha
Common Lizard	<20/ha	>40/ha	>80/ha
Grass Snake	<2/ha	2-4/ha	>4/ha
Slow Worm	<50/ha	>50/ha	>100/ha

2.4.4 Constraints

Due to dense areas of *Rubus fruticosus* agg. (Bramble) on the site the artificial refuges were placed in accessible areas only (*Figure 4*). To compensate for this constraint more than 10 refuges per hectare were deployed to improve the likelihood of finding reptiles during the surveys.

3 RESULTS

3.1 Background Data Search

3.1.1 Biodiversity Action Plans

Under *Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006*, a total of 56 Habitats of Principal Importance (HoPI) are listed and 943 species. These habitats and species were previously referred to as UK BAP priorities.

The latest Kent Local Biodiversity Action Plan (LBAP) lists 19 Habitat Action Plans. The Kent Biodiversity Partnership has made habitats its focus for conservation in the Kent BAP and has no specific Species Action Plans. The local HAPs that are relevant to the proposed development are;

- Built-up Areas & Gardens

3.1.2 Designated Sites

Statutory Sites

There are two statutory designated sites within 2 km of the site boundary, both of which are Local Nature Reserves (LNRs). These sites are listed in *Table 3* in order of proximity to the site; short descriptions are given for the sites.

Table 3: Statutory Sites within 2 km of the Site Boundary

Site Name	Designation	Approximate Distance (m)
Ashford Community Woodland	LNR	275
Ashford Community Woodland LNR comprises semi natural broadleaf woodland, naturally established mixed scrub and lowland meadow areas. This site supports a variety of birds including Lesser Whitethroat (<i>Sylvia curruca</i>), Nightingale (<i>Luscinia megarhynchos</i>), Skylark (<i>Alauda arvensis</i>), Spotted Flycatcher (<i>Muscicapa striata</i>), Willow Warbler (<i>Phylloscopus trochilus</i>) and Yellowhammer (<i>Emberiza citrinella</i>). The site is important for reptiles with Common Lizard, Grass Snake and Slow Worm recorded. Notable invertebrates include dragonflies and butterflies such as Comma (<i>Polygonia c-album</i>), Marbled White (<i>Melanargia galathea</i>), Small Skipper (<i>Thymelicus sylvestris</i>) and Speckled Wood (<i>Pararge aegeria</i>). The site is connected via footpaths to Ashford Warren Local Wildlife Site.		
Ashford Green Corridors	LNR	695
Ashford Green Corridor LNR is a green space running alongside rivers through the centre of Ashford. Main habitats include the Singleton Lake and associated wetland habitats, riverside pollards, urban meadows, ponds, wet grassland and hedges. The LNR supports a wide variety of species including damselflies such as the Banded Demoiselle (<i>Calopteryx splendens</i>), amphibians and reptiles including Grass Snake, and wetland birds such as Great Crested Grebe (<i>Podiceps cristatus</i>), Green Sandpiper (<i>Tringa ochropus</i>), Kingfisher (<i>Alcedo atthis</i>) and Nightingale.		

SSSI Impact Risk Zones

There are several SSSIs in the wider area, including Hoad's Wood SSSI, Hatch Park SSSI and Orlestone Forest SSSI. The site intersects SSSI Impact Risk Zones for these sites. The proposed works (housing) do not meet the criteria required for consultation with Natural England.

Non-statutory Sites

There are three non-statutory designated sites within 1 km of the site boundary, all of which are Local Wildlife Sites (LWSs). These sites are listed in *Table 4* in order of proximity to the site.

Table 4: Non-Statutory Sites within 1 km of the Site Boundary

Site Name	Designation	Approximate Distance (m)
Great Stour, Ashford to Fordwich	LWS	430
Buxford Meadow, Singleton	LWS	495
River Great Stour, Godinton	LWS	870

Other Notable Sites

There are two areas of ancient woodland within 1 km of the site boundary. The closest area of ancient woodland to the site boundary is 710 m to the south.

3.1.3 Protected and Noteworthy Species

At least 112 noteworthy species are recorded from places within 1 km of the site boundary. Of these, 5 are amphibians, 59 are birds, 29 are invertebrates, 3 are plants, at least 13 are mammals and 3 are reptiles. Species that are protected by law under *Schedules 2 and 5 of The Conservation of Habitats and Species (Amendment) Regulations 2012*, *The Wildlife and Countryside Act 1981* or *The Protection of Badgers Act 1992* and have been recorded in the search area are listed in *Table 5*; a full species list is given in *Appendix C*.

Table 5: Protected Species Records within 1 km of the Site Boundary

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km
Amphibians						
<i>Bufo bufo</i>	Common Toad	WCA5	2012	10		☒
<i>Lissotriton helveticus</i>	Palmate Newt	WCA5	2013	7		☒

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km
<i>Lissotriton vulgaris</i>	Smooth Newt	WCA5	2013	9		<input checked="" type="checkbox"/>
<i>Rana temporaria</i>	Common Frog	WCA5	2012	16	P	<input checked="" type="checkbox"/>
<i>Triturus cristatus</i>	Great Crested Newt	EPS(Sch2), WCA5	2013	3		<input checked="" type="checkbox"/>
Birds						
<i>Alcedo atthis</i>	Kingfisher	WCA1.1	2011	7		<input checked="" type="checkbox"/>
<i>Bucephala clangula</i>	Goldeneye	WCA1.2	2013	1		<input checked="" type="checkbox"/>
<i>Cettia cetti</i>	Cetti's Warbler	WCA1.1	2012	1		<input checked="" type="checkbox"/>
<i>Circus aeruginosus</i>	Marsh Harrier	WCA1.1	2012	1		<input checked="" type="checkbox"/>
<i>Circus cyaneus</i>	Hen Harrier	WCA1.1	2012	1		<input checked="" type="checkbox"/>
<i>Falco subbuteo</i>	Hobby	WCA1.1	2011	13		<input checked="" type="checkbox"/>
<i>Larus melanocephalus</i>	Mediterranean Gull	WCA1.1	2011	1		P
<i>Numenius phaeopus</i>	Whimbrel	WCA1.1	1997	2		<input checked="" type="checkbox"/>
<i>Tringa ochropus</i>	Green Sandpiper	WCA1.1	1997	12		<input checked="" type="checkbox"/>
<i>Turdus pilaris</i>	Fieldfare	WCA1.1	2012	1		<input checked="" type="checkbox"/>
<i>Tyto alba</i>	Barn Owl	WCA1.1	1997	1		<input checked="" type="checkbox"/>
Invertebrates						
<i>Austropotamobius pallipes</i>	White-clawed Freshwater Crayfish	WCA5	2010	40		<input checked="" type="checkbox"/>
Mammals						
<i>Arvicola amphibius</i>	European Water Vole	WCA5	2012	3		<input checked="" type="checkbox"/>
Chiroptera	Bat	EPS(Sch2)	2011	11		<input checked="" type="checkbox"/>
<i>Eptesicus serotinus</i>	Serotine Bat	EPS(Sch2), WCA5	2012	3		<input checked="" type="checkbox"/>
<i>Meles meles</i>	Eurasian Badger	BA	2004	3		<input checked="" type="checkbox"/>
<i>Myotis brandtii</i>	Brandt's Bat	EPS(Sch2), WCA5	1988	2		<input checked="" type="checkbox"/>
<i>Myotis daubentonii</i>	Daubenton's Bat	EPS(Sch2), WCA5	2014	12		<input checked="" type="checkbox"/>
<i>Myotis mystacinus</i>	Whiskered Bat	EPS(Sch2), WCA5	1988	1		<input checked="" type="checkbox"/>
<i>Myotis mystacinus / brandtii</i>	Whiskered / Brandt's Bat	EPS(Sch2), WCA5	1995	1		<input checked="" type="checkbox"/>
<i>Nyctalus noctula</i>	Noctule Bat	EPS(Sch2), WCA5	2014	4		<input checked="" type="checkbox"/>
<i>Pipistrellus nathusii</i>	Nathusius' Pipistrelle	EPS(Sch2), WCA5	2006	2		<input checked="" type="checkbox"/>
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	EPS(Sch2), WCA5	2015	25		<input checked="" type="checkbox"/>
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EPS(Sch2), WCA5	2014	16	P	<input checked="" type="checkbox"/>
<i>Pipistrellus sp.</i>	a Pipistrelle bat	EPS(Sch2), WCA5	2015	16		<input checked="" type="checkbox"/>
<i>Plecotus auritus</i>	Brown Long-Eared Bat	EPS(Sch2), WCA5	2013	4		<input checked="" type="checkbox"/>

Latin Name	Common Name	Designation	Most Recent	No of Records	Within 100m	Within 1km
<i>Plecotus</i> sp.	a Long-Eared bat	EPS(Sch2), WCA5	2014	1		<input checked="" type="checkbox"/>
Plants						
<i>Hyacinthoides non-scripta</i>	Bluebell	WCA8	1999	3	P	P
Reptiles						
<i>Anguis fragilis</i>	Slow-worm	WCA5	2013	10		<input checked="" type="checkbox"/>
<i>Natrix natrix</i>	Grass Snake	WCA5	2013	8		<input checked="" type="checkbox"/>
<i>Zootoca vivipara</i>	Common Lizard	WCA5	2013	9		<input checked="" type="checkbox"/>

Note - **P** relates to records with 4 figure or tetrad grid references that could potentially be anywhere within a 1 km or 2 km square.

3.2 Habitats

3.2.1 Dense scrub

The site is dominated by dense scrub, with some scattered scrub in the rough semi-improved grassland. The dense scrub is dominated by *Rubus fruticosus* agg. (Bramble) (*Target Note 3*), with some areas of *Crataegus monogyna* (Hawthorn) and *Salix* sp. (Willow) along the eastern boundary (*Target Note 5*) alongside some immature *Betula pendula* (Silver Birch). In the centre of the site is a thicket of *Prunus spinosa* (Blackthorn), *Rubus fruticosus* agg. (Bramble), *Quercus* sp. (Oak) and *Malus* sp. (Apple) saplings, and *Rosa canina* (Dog-rose) (*Target Note 1*).

3.2.2 Semi-improved grassland

Pockets of rough semi-improved grassland are present within the site, containing *Agrostis capillaris* (Common Bent), *Holcus lanatus* (Yorkshire-fog) and *Poa annua* (Annual Meadow-grass). The grassland is interspersed with ruderal forbs including *Rumex obtusifolius* (Broad-leaved dock), *Chamerion angustifolium* (Rosebay Willowherb), *Senecio* sp. (a Ragwort), scattered *Rubus fruticosus* agg. (Bramble) and *Taraxacum* sect. *Ruderalia* (Common Dandelion) (*Target Note 4*). There is also a very small patch of *Juncus effusus* (Soft-rush) within the site, indicating waterlogged soils (*Target Note 8*).

3.3 Protected Species

3.3.1 Badgers

There are mammal paths across the site, indicating possible use by Badgers, and probably use by Fox (*Vulpes vulpes*). Although there were no latrines or setts recorded within the site much of the site could not be accessed to enable a through survey for setts and other field signs. As such, although an substantial sett is unlikely to be

present within the site, the presence of this species cannot be entirely ruled out at this stage.

3.3.2 Bats

The site provides an area of open space between residential developments and the Great Chart School and consequently, is likely to be utilised by bats for foraging. However, it does not comprise high value habitat for foraging, and no features suitable for roosting bats are present.

3.3.3 Nesting birds

Incidental observation of a variety of species of breeding birds was made during the surveys on the site to date. The habitats are very likely to support a high number of common species of breeding birds for both breeding and foraging throughout the year.

3.3.4 Reptiles

The complex of rough grassland, scattered and dense scrub provides potentially suitable habitat for widespread species of reptiles, and Slow Worms and Common Lizards in particular. The structural diversity provides suitable foraging, basking and hibernating habitat. As such, reptile surveys are appropriate for the rough grassland and scattered scrub; dense scrub is generally unsuitable. These surveys were undertaken concurrently with the PEA.

3.3.5 Great crested newts

The structural composition of the site, and proximity to water bodies, provides suitable habitat for great crested newts. The residential areas, amenity grassland, and hard standing surrounding the site provide low suitability for this species however, which relies on an interconnecting network of features for breeding and the terrestrial phase of their lifecycle. Although the likelihood of presence is low, further surveys are appropriate to confirm likely absence. These surveys were undertaken concurrently with the PEA.

3.4 Great Crested Newt

3.4.1 Habitat Suitability Index

Upon revisiting the six water bodies identified in the previous report (Jacobs, 2010) it was found that only two were now suitable for further survey for Great Crested Newts. A summary of the status of each water body is provided in *Table 6*;

Table 6: Description of each water body in 2017

Water body	Description	Suitable for further survey?
Ditch 1	Found to be dry	No
Pond 2	Still present and of an adequate size to be suitable for GCN	Yes
Ditch 3	Almost completely dry, too shallow for survey and now densely shaded.	No
School pond 4	Almost completely dry, too shallow for survey	No
New pond 5	No longer exists, lost to development	No
Moat 6	Large water body, still suitable for survey	Yes

The habitat suitability index results for the two suitable water bodies are provided in *Table 7*. Photos of the water bodies are included in the *Plates*.

Table 7: Habitat Suitability Index Results

Factor	Pond 2	Moat 6
Location (SI 1)	1	1
Water body Area (SI 2)	0.9	0.8
Water body Drying (SI 3)	1	1
Water Quality (SI 4)	0.67	0.33
Shade (SI 5)	1	1
Water Fowl (SI 6)	0.67	0.67
Fish (SI 7)	0.33	0.67
Water bodies (SI 8)	0.83	0.83
Terrestrial Habitat (SI 9)	0.33	0.67
Macrophyte Cover (SI 10)	0.65	0.5
Habitat Suitability Index (HSI) Score	0.7	0.71
Water body suitability for GCN	Good	Good

3.4.2 Environmental DNA Sampling

The protocols for sampling environmental DNA were followed successfully and a valid result was obtained from the laboratory analysis (*Table 8*). The laboratory report is provided in *Appendix E*.

Table 8: eDNA results for each water body

Water body	Result
Pond 2	Negative
Moat 6	Negative

3.5 Reptiles

The results of the surveys are presented in *Table 9* below. Sufficient survey visits were conducted to allow an estimation of population size class assessment to be made.

Weather data and a full table of results are given in *Appendix F*. In the table the code Zv stands for *Zootoca vivipara* (Common lizard).

Table 9. Reptile survey results

	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	Check 7
Date	03/04/17	06/04/17	10/04/17	18/04/17	20/04/17	24/04/17	26/04/17
Reptiles found	0	0	1 Zv	0	0	1 Zv	1 Zv
Totals	0	0	1 Zv	0	0	1 Zv	1 Zv

3.5.1 Population Estimate

The average maximum number of each species per hectare (excluding juvenile animals) spotted during one reptile survey on one day in suitable weather conditions is shown in *Table 10*. Numbers have been rounded up.

Table 10: Maximum counts and population estimates

Species	Peak Count (excluding juveniles)	Peak Count calculated per hectare	Population Estimate
Common lizard	1	1.79	Low

4 EVALUATION

4.1 Habitats

The complex of habitats and plants on the site are common and widespread and are of low importance botanically. The habitat does offer good structural diversity and given the dense residential nature of the surrounding landscape, this site is likely to be of value for the animal species present in the area.

4.2 Protected Species

4.2.1 Badgers

As a number of mammal runs were recorded within the site, and much of the area could not be accessed for a thorough search for setts, further surveys are recommended once access can be created through the dense scrub. However, the absence of latrines or other field signs in accessible areas indicates that significant setts (e.g. main or subsidiary) are unlikely to be present. Given that no foraging signs were recorded during the survey, this site is unlikely to provide an important foraging resource for Badgers.

4.2.2 Bats

The site may provide a foraging resource for bats. It is of low suitability for foraging bats as it does not provide a critical link between resources, is relatively isolated in the wider landscape and no high value features such as woodland or water features are present. Additionally due to a lack of suitable features there appear to be no roosts on the site. However, as the proposed development will remove most of the habitat currently present three further surveys will be necessary to obtain more information on the bat species currently using the site for foraging. This follows best practice guidelines from the Bat Conservation Trust. Three bat activity surveys (one per season) are needed. Activity surveys should be combined with static detector deployment. Static detectors will passively record foraging bats for five days, on three occasions, in spring, summer and autumn respectively.

4.2.3 Great Crested Newt

As the results of the eDNA surveys both returned negative results no further surveys or mitigation for Great Crested Newts will be required.

4.2.4 Nesting birds

The site is very likely to provide an important foraging and nesting resource for breeding birds, particularly in the context of the surrounding environment. Although rare or notable species are unlikely to be present, a high number and assemblage of more common species are expected to breed within the site. As such, consideration for the provision of sheltered areas for nesting, and a range of fruiting and flowering species for feeding, should be made in any development proposals. Bird nest boxes are also recommended. All birds are protected whilst nesting under the Wildlife and Countryside

Act 1981 (as amended). It is an offence to intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built. Therefore, any habitat suitable for nesting birds (e.g. trees and scrub) that requires clearance should be removed outside of the bird-breeding season (March to August inclusive). Where it is not possible to remove habitats suitable for nesting birds outside of the bird-breeding season they should be searched by an ecologist for any nesting birds prior to tree felling, hedge and scrub removal. This would involve the survey and inspection of the vegetation for nesting birds to include a search for nests and the observation of bird behavior. In the event that active nests are identified the ecologist will mark out a buffer zone of c. 5 m (the extent of the exclusion zone will be dependent upon the species of bird and how the vegetation is to be cleared). Once any young have fledged and the nest is no longer in use then works can progress at this location. Note that nesting birds can develop a second clutch within the same season.

4.2.5 Reptiles

The results of the 2017 surveys identified a low population of Common Lizards but previous surveys undertaken by Jacobs in 2010 concluded a medium population of Grass Snake a low population of Slow Worm and Common Lizard. The variation in these survey results may be due to the expanse of scrub that is likely to have developed over the intervening years through lack of management.

Any proposed development on the site has the potential to affect these species, which are protected from killing and injury under the Wildlife and Countryside Act 1981. As the proposed development will remove almost all of the suitable habitat on the site, a translocation of all reptiles on site will be required to protect them from being injured or killed during construction. As the population densities for each reptile species found on site have been estimated as 'low', a thirty day translocation will be required. A receptor site for the reptiles will have to be found and a method statement for the habitat clearance and eventual translocation should be produced and agreed with the local planning authority.

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6 FIGURES



Site boundary

Rev	Date	Description	Drn	Chk	App
00	24.04.17	856993	RG	SP	LS

Great Chart School, Ashford

Figure 1

Site Location Plan

0 150

metres

Scale = 1:5,000 @ A3

REV 00



- Site boundary
- Scattered broad-leaved tree
- Dense scrub
- Scattered scrub
- SI Poor semi-improved grassland
- Fence
- Possible mammal path
- Target note

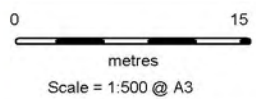


00	24.04.17	856993	RG	SP	LS
Rev	Date	Description	Drn	Chk	App

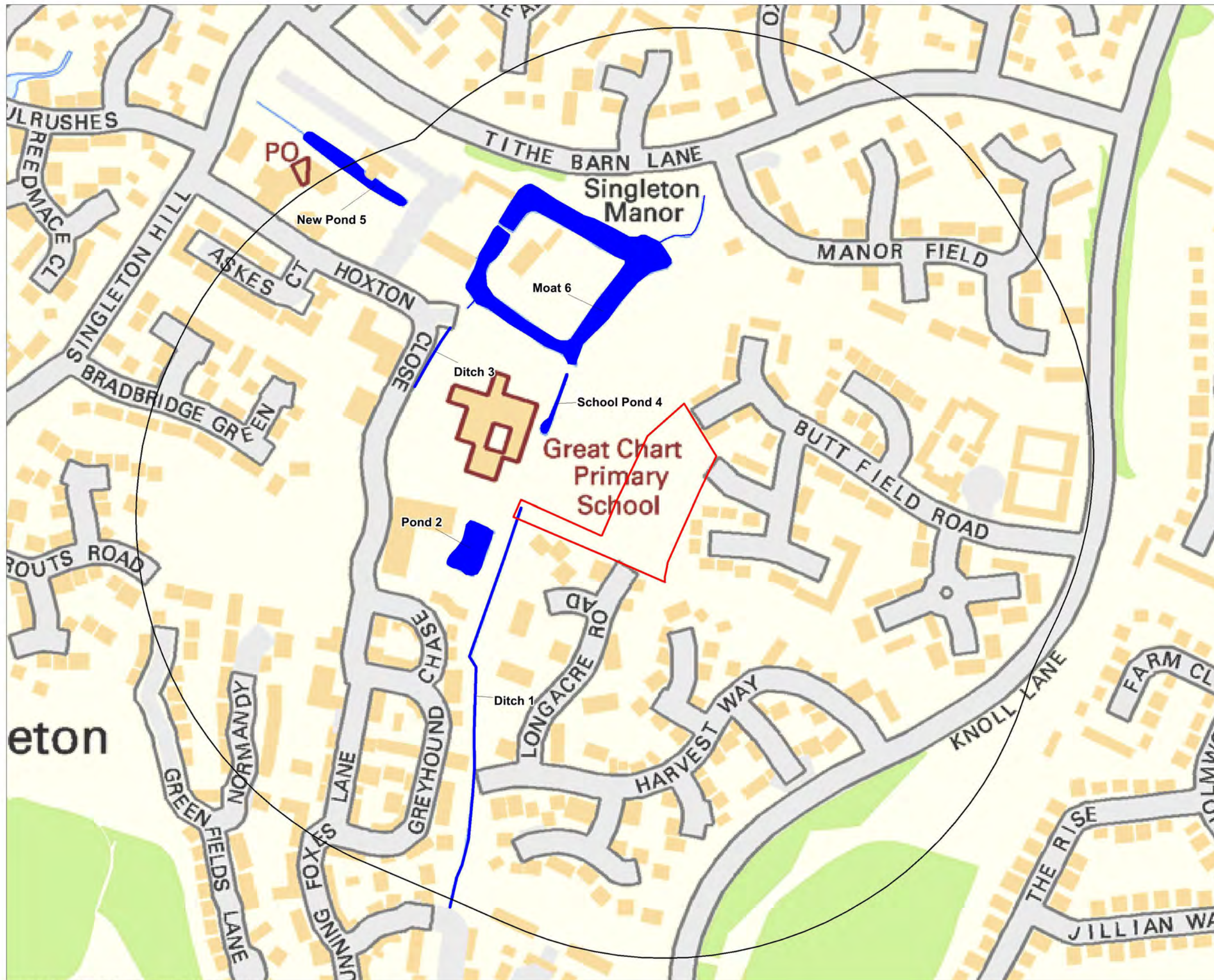
Great Chart School, Ashford



Figure 2
Phase 1 Habitat Map



REV 00



Site boundary

250 m buffer

Water body

00	24.04.17	856993	RG	SP	LS
Rev	Date	Description	Drn	Chk	App

Great Chart School, Ashford

Figure 3

Map of Water Bodies within 250 m

0

75

metres

Scale = 1:2,500 @ A3

N

W

E

S

REV 00



Site boundary

Reptile refuges - 25 in total

00	24.04.17	856993	RG	SP	LS
Rev	Date	Description	Drn	Chk	App

Great Chart School, Ashford

Figure 4

Map of Reptile Survey Refuges

015

metres

Scale = 1:500 @ A3

N

W

E

S

REV 00

7 PLATES



Plate 1 - Habitats on site



Plate 2 - Dense scrub



Plate 3 - Pond 2



Plate 4 - Moat 6



00	24.04.17	856993	RG	SP	LS
Rev	Date	Description	Drn	Chk	App

Great Chart School, Ashford



Plates

REV 00

APPENDIX A - PROTECTED SPECIES LEGISLATION

General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

Badger

Meles meles (Badger) is protected in Britain under the *Protection of Badgers Act 1992* and *Schedule 6 of The Wildlife and Countryside Act 1981* (as amended). The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

Bats

All species of British bat are protected by *The Wildlife and Countryside Act 1981* (as amended), extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take;
- possess or control;
- intentionally or recklessly damage, destroy or obstruct access to a breeding site or resting place; and
- intentionally or recklessly disturb whilst the animal occupies a breeding site or resting place.

Bats are also European Protected Species listed on *The Conservation of Species and Habitats Regulations 2010* (as amended). This legislation makes it an offence to:

- deliberately capture, injure or kill;
- deliberately disturb, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place; and
- possess, control, transport, sell, exchange, or offer for sale or exchange.

Birds

Birds - general protection

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CRow Act. The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Common Reptiles

Zootoca vivipara (Common Lizard), *Natrix natrix* (Grass Snake), *Anguis fragilis* (Slow-worm), and *Vipera berus* (Adder) are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the CRow Act. Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

Great Crested Newt

Triturus cristatus (Great Crested Newt) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. Great Crested Newts are also European Protected Species listed on *The Conservation of Species and Habitats Regulations 2010* (as amended). This legislation makes it an offence to:

- deliberately capture, injure or kill a Great Crested Newt;
- deliberately disturb a Great Crested Newt (in such a way as to be likely to significantly affect, (i) the ability of a significant group of Great Crested Newt to survive, breed or rear/nurture their young; and (ii) the local distribution or abundance of the species concerned);
- deliberately take or destroys the eggs of such an animal;
- damage or destroy a breeding site or resting place of a Great Crested Newt; and
- possess, control, transport, sell, exchange a Great Crested Newt, or offer a Great Crested Newt for sale or exchange.

All resting and breeding places of Great Crested Newts receive legal protection even when Great Crested Newts are not present.

APPENDIX B - TARGET NOTES

TN1: Dense thicket of *Prunus spinosa* (Blackthorn), *Rubus fruticosus* agg. (Bramble), *Quercus* sp. (Oak) and *Malus* sp. (Apple) saplings, and *Rosa canina* (Dog-rose).

TN2: Immature ornamental trees along site boundary – *Salix* sp. (Willow) and an ornamental purple-leaved *Prunus* sp. (Cherry).

TN3: An impenetrable area of dense *Rubus fruticosus* agg. (Bramble) scrub.

TN4: Rough semi-improved grassland with good structural diversity. Infrequent scattered scrub and ruderals including *Rumex obtusifolius* (Broad-leaved Dock), *Chamerion angustifolium* (Rosebay Willowherb), *Taraxacum* sect. *Ruderalia* (Common Dandelion) and *Senecio* sp. (a Ragwort). Potentially suitable for reptiles and amphibians.

TN5: An area of dense *Crataegus monogyna* (Hawthorn) and *Salix* sp. (Willow).

TN6: Immature *Betula pendula* (Silver Birch) trees.

TN7: A mammal run, possibly badger, in and out of dense scrub.

TN8: *Juncus effusus* (Soft-rush) in rough SI grassland, indicating wet soils.

APPENDIX C – NOTEWORTHY SPECIES RECORDS

Table 11 displays noteworthy species records that are located within 1 km of the site boundary. These species records were obtained from Kent and Medway Biological Record Centre. The Latin and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in Table 12, Appendix D. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but rather that data-holding organizations do not have records of it in these locations.

Table 11: Noteworthy Species Records within 1 km of the Site Boundary

Latin Name	Common Name	Designation
Amphibians		
<i>Bufo bufo</i>	Common Toad	WCA5, S41
<i>Lissotriton helveticus</i>	Palmate Newt	WCA5
<i>Lissotriton vulgaris</i>	Smooth Newt	WCA5
<i>Rana temporaria</i>	Common Frog	WCA5
<i>Triturus cristatus</i>	Great Crested Newt	EPS(Sch2), WCA5, S41
Birds		
<i>Actitis hypoleucos</i>	Common Sandpiper	Amber
<i>Alauda arvensis</i>	Skylark	S41, Red
<i>Alcedo atthis</i>	Kingfisher	WCA1.1, Amber
<i>Anas clypeata</i>	Shoveler	Amber
<i>Anas penelope</i>	Wigeon	Amber
<i>Anas platyrhynchos</i>	Mallard	Amber
<i>Anas strepera</i>	Gadwall	Amber
<i>Anthus pratensis</i>	Meadow Pipit	Amber
<i>Apus apus</i>	Swift	Amber
<i>Aythya ferina</i>	Pochard	Red
<i>Aythya fuligula</i>	Tufted Duck	Amber
<i>Branta leucopsis</i>	Barnacle Goose	Amber
<i>Bucephala clangula</i>	Goldeneye	WCA1.2, Amber
<i>Carduelis cannabina</i>	Linnet	S41, Red
<i>Cettia cetti</i>	Cetti's Warbler	WCA1.1
<i>Circus aeruginosus</i>	Marsh Harrier	WCA1.1, Amber
<i>Circus cyaneus</i>	Hen Harrier	WCA1.1, S41, Red
<i>Columba oenas</i>	Stock Dove	Amber
<i>Cuculus canorus</i>	Cuckoo	S41, Red
<i>Cygnus olor</i>	Mute Swan	Amber
<i>Delichon urbica</i>	House Martin	Amber
<i>Egretta garzetta</i>	Little Egret	Amber

Latin Name	Common Name	Designation
<i>Emberiza citrinella</i>	Yellowhammer	S41, Red
<i>Emberiza schoeniclus</i>	Reed Bunting	S41, Amber
<i>Falco subbuteo</i>	Hobby	WCA1.1
<i>Falco tinnunculus</i>	Kestrel	Amber
<i>Hirundo rustica</i>	Swallow	Amber
<i>Larus argentatus</i>	Herring Gull	S41, Red
<i>Larus canus</i>	Common Gull	Amber
<i>Larus fuscus</i>	Lesser Black-backed Gull	Amber
<i>Larus marinus</i>	Great Black-backed Gull	Amber
<i>Larus melanocephalus</i>	Mediterranean Gull	WCA1.1, Amber
<i>Larus ridibundus</i>	Black-headed Gull	Amber
<i>Luscinia megarhynchos</i>	Nightingale	Red
<i>Limnospiza minima</i>	Jack Snipe	Amber
<i>Motacilla cinerea</i>	Grey Wagtail	Red
<i>Motacilla flava</i>	Yellow Wagtail	S41, Red
<i>Muscicapa striata</i>	Spotted Flycatcher	S41, Red
<i>Numenius phaeopus</i>	Whimbrel	WCA1.1, Red
<i>Passer domesticus</i>	House Sparrow	S41, Red
<i>Passer montanus</i>	Tree Sparrow	S41, Red
<i>Phylloscopus trochilus</i>	Willow Warbler	Amber
<i>Picus viridis</i>	Green Woodpecker	Amber
<i>Pluvialis apricaria</i>	Golden Plover	Amber
<i>Prunella modularis</i>	Dunnock	S41, Amber
<i>Pyrrhula pyrrhula</i>	Bullfinch	S41, Amber
<i>Saxicola rubetra</i>	Whinchat	Red
<i>Scolopax rusticola</i>	Woodcock	Red
<i>Streptopelia turtur</i>	Turtle Dove	S41, Red
<i>Strix aluco</i>	Tawny Owl	Amber
<i>Sturnus vulgaris</i>	Starling	S41, Red
<i>Sylvia communis</i>	Whitethroat	Amber
<i>Tachybaptus ruficollis</i>	Little Grebe	Amber
<i>Tringa ochropus</i>	Green Sandpiper	WCA1.1, Amber
<i>Turdus philomelos</i>	Song Thrush	S41, Red
<i>Turdus pilaris</i>	Fieldfare	WCA1.1, Red
<i>Turdus viscivorus</i>	Mistle Thrush	Red
<i>Tyto alba</i>	Barn Owl	WCA1.1, Amber
<i>Vanellus vanellus</i>	Lapwing	S41, Red
Invertebrates		
<i>Austropotamobius pallipes</i>	White-clawed Freshwater Crayfish	WCA5, S41
<i>Calamotropha paludella</i>	Bulrush Veneer	Notable:B
<i>Caradrina morpheus</i>	Mottled Rustic	S41
<i>Catapion pubescens</i>	<i>Catapion pubescens</i>	Notable:B
<i>Curculio betulae</i>	<i>Curculio betulae</i>	Notable:B

Latin Name	Common Name	Designation
<i>Diarsia rubi</i>	Small Square-spot	S41
<i>Dolichovespula (Dolichovespula) media</i>	<i>Dolichovespula (Dolichovespula) media</i>	Notable:A
<i>Drupenatus nasturtii</i>	<i>Drupenatus nasturtii</i>	Notable:B
<i>Eumerus ornatus</i>	<i>Eumerus ornatus</i>	Notable
<i>Hemistola chrysoprasaria</i>	Small Emerald	S41
<i>Hepialus humuli</i>	Ghost Moth	S41
<i>Hoplodrina blanda</i>	Rustic	S41
<i>Hydrotaea parva</i>	<i>Hydrotaea parva</i>	Notable
<i>Lasiochaeta pubescens</i>	<i>Lasiochaeta pubescens</i>	Notable
<i>Leucania comma</i>	Shoulder-striped Wainscot	S41
<i>Longitarsus parvulus</i>	Flax Flea Beetle	Notable:A
<i>Malacosoma neustria</i>	Lackey	S41
<i>Melanchra persicariae</i>	Dot Moth	S41
<i>Oscinella angularis</i>	<i>Oscinella angularis</i>	Notable
<i>Peltodytes caesus</i>	<i>Peltodytes caesus</i>	NS
<i>Sapromyza albiceps</i>	<i>Sapromyza albiceps</i>	Notable
<i>Scirtes orbicularis</i>	<i>Scirtes orbicularis</i>	NS
<i>Spilosoma lutea</i>	Buff Ermine	S41
<i>Stathmopoda pedella</i>	Alder Signal	Notable:B
<i>Timandra comae</i>	Blood-Vein	S41
<i>Typhamyza bifasciata</i>	<i>Typhamyza bifasciata</i>	Notable
<i>Tyria jacobaeae</i>	Cinnabar	S41
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	S41
Mammals		
<i>Arvicola amphibius</i>	European Water Vole	WCA5, S41
Chiroptera	Bat	EPS(Sch2)
<i>Eptesicus serotinus</i>	Serotine Bat	EPS(Sch2), WCA5
<i>Erinaceus europaeus</i>	West European Hedgehog	S41
<i>Meles meles</i>	Eurasian Badger	BA
<i>Micromys minutus</i>	Harvest Mouse	S41
<i>Myotis brandtii</i>	Brandt's Bat	EPS(Sch2), WCA5
<i>Myotis daubentonii</i>	Daubenton's Bat	EPS(Sch2), WCA5
<i>Myotis mystacinus</i>	Whiskered Bat	EPS(Sch2), WCA5
<i>Myotis mystacinus / brandtii</i>	Whiskered / Brandt's Bat	EPS(Sch2), WCA5
<i>Nyctalus noctula</i>	Noctule Bat	EPS(Sch2), WCA5, S41
<i>Pipistrellus nathusii</i>	Nathusius' Pipistrelle	EPS(Sch2), WCA5
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	EPS(Sch2), WCA5
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EPS(Sch2), WCA5, S41
<i>Pipistrellus</i> sp.	a Pipistrelle bat	EPS(Sch2), WCA5
<i>Plecotus auritus</i>	Brown Long-Eared Bat	EPS(Sch2), WCA5, S41
<i>Plecotus</i> sp.	a Long-Eared bat	EPS(Sch2), WCA5, S41

Latin Name	Common Name	Designation
Plants		
<i>Acronicta rumicis</i>	Knot Grass	S41
<i>Buxus sempervirens</i>	Box	NR
<i>Hyacinthoides non-scripta</i>	Bluebell	WCA8
<i>Ranunculus flammula</i>	Lesser Spearwort	ENG BSBI RDB(VU)
Reptiles		
<i>Anguis fragilis</i>	Slow-worm	WCA5, S41
<i>Natrix natrix</i>	Grass Snake	WCA5, S41
<i>Zootoca vivipara</i>	Common Lizard	WCA5, S41

APPENDIX D – ABBREVIATIONS

Table 12 displays abbreviations of protected species legislation.

Table 12: Glossary of Abbreviations Used in this Report

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BA	The Protection of Badgers Act 1992	Legislation making it an offence to kill, injure or take a Badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.
BAP	Biodiversity Action Plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
DA	The Deer Act 1991	All wild deer with the exception of Muntjac (<i>Muntiacus reevesi</i>) and Chinese Water deer (<i>Hydropotes inermis</i>) are protected by a closed season.
ENG BSBI RDB	A Vascular Plant Red List for England	A list published in 2014 by the Botanical Society of Britain and Ireland of the red list status of plants in England. Measured against standardised IUCN criteria.
ENG BSBI RDB(CR)	Critically Endangered	A BSBI Red List designation for species at an extremely high risk of extinction.
ENG BSBI RDB(EN)	Endangered	A BSBI Red List designation for species at a very high risk of extinction.
ENG BSBI RDB(VU)	Vulnerable	A BSBI Red List designation for species at high risk of extinction.
EPS (Sch 2)	European Protected Species (Schedule 2)	European protected animal species (listed on <i>Schedules 2 of The Conservation of Habitats and Species (Amendment) Regulations 2012</i>)
EPS (Sch 5)	European Protected Species (Schedule 5)	European protected plant species (listed on <i>Schedules 5 of The Conservation of Habitats and Species (Amendment) Regulations 2012</i>)
GB RDB	Red Data Book Species	Species identified in one of the UK Red Data 2001.
GB RDB(CR)	Critically Endangered	An IUCN Red List designation for species at an extremely high risk of extinction.
GB RDB(EN)	Endangered	An IUCN Red List designation for species at a

Code	Full Title	Explanation
		very high risk of extinction.
GB RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
HAP	Habitat Action Plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources (also known as The World Conservation Union)	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local Habitat Action Plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local Species Action Plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable:A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NN	Nationally Notable	Designation for invertebrate taxa that are thought to be notably important in the UK.
NR	Nationally Rare	Species in 15 or fewer hectads in Great Britain.
NS	National Scarce	Species in 16-100 hectads in Great Britain.
Red	Red List	Red listed species have a population status in the UK with high conservation concern.
SAP	Species Action Plan	A plan that identifies threats to significantly

Code	Full Title	Explanation
		important species, and sets out targets and actions to prevent losing that species to extinction.
S41	Species of Principal Importance	Species of Principal Importance in England under <i>The Natural Environment and Rural Communities (NERC) Act (2006)</i>
UKBAP	UK Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity in the UK.
WCA	<i>The Wildlife and Countryside Act 1981 (as amended)</i>	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way. All wild plants in Britain are protected from intentional uprooting by an unauthorized person, but land owners, land occupiers, persons authorized by either of these or persons authorized in writing by the Local Authority for the area are exempt. Protection for some species may be limited to certain Sections of the Act (e.g. S13(2)).
WCA1	Schedule 1 of <i>The Wildlife and Countryside Act 1981 (as amended)</i>	<p>This Schedule lists birds protected by special penalties at all times, but virtually all wild birds have some protection in law.</p> <p>Acts which are prohibited for all wild birds (except derogated 'pest' species) include intentional killing, injuring or taking; taking, damaging or destroying nests in use or being built; taking or destroying eggs; possessing or having control of (with certain exceptions but including live for dead birds, parts or derivative); setting or permitting certain traps, weapons, decoys or poisons. Selling, offering or exposing for sale, possessing or transporting for sale any live wild bird, egg or part of an egg or advertising any of these for sale, or dead wild bird including parts or derivatives are also prohibited. Many birds must be formally registered and ringed if kept in captivity.</p> <p>Schedule 1 WCA birds are additionally protected from intentional or reckless disturbance while building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentional or reckless disturbance of dependent young.</p>
WCA5	Schedule 5 of <i>The Wildlife and Countryside Act</i>	Schedule 5 animals are protected from intentional killing, injuring or taking; possessing (including parts or derivatives); intentional or

Code	Full Title	Explanation
	1981 (as amended)	reckless damage, destruction or obstruction of any structure or place used for shelter or protection; selling, offering or exposing for sale, possessing or transporting for the purpose of sale (alive or dead, including parts or derivatives). Protection of some species is limited to certain Sections of the Act (e.g. S9(1), S9(4a), S9(4b), S9(5)).
WCA8	Schedule 8 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Plants and fungi protected from intentional picking, uprooting, destroying, trading (including parts or derivatives), <i>etc.</i>

APPENDIX E – ENVIRONMENTAL DNA LABORATORY REPORT



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Sample/Report ID: 2017-199

Condition on Receipt: Good

Visual Inspection of Volume: Passed

Client Identifier: Pond 2

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 20/04/2017

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Negative	Real time PCR	24/04/2017

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

Date of preparation:

24/04/2017

Date of issue:

24/04/2017

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.



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Sample/Report ID: 2017-200

Condition on Receipt: Good

Visual Inspection of Volume: Passed

Client Identifier: Moat 6

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 20/04/2017

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Negative	Real time PCR	24/04/2017

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

Date of preparation:

24/04/2017

Date of issue:

24/04/2017

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

Appendix 1: qPCR GCN eDNA analysis results breakdown

q-PCR eDNA analysis Results

Experimental Samples	GCN*	Inhibition Control [†]	Degradation Control [§]
Extraction Blank	0 of 12	N/A	N/A
Pond 2	0 of 12	2 of 2	Within Limits
Moat 6	0 of 12	2 of 2	Within Limits
Controls	Number of Positive Replicate Reactions*		
Negative PCR Control (Nuclease Free Water)	0 of 4		
Positive Control GCN DNA 10 ⁻¹ ng/μL	4 of 4		
Positive Control GCN DNA 10 ⁻² ng/uL	4 of 4		
Positive Control GCN DNA 10 ⁻³ ng/μL	4 of 4		
Positive Control GCN DNA 10 ⁻⁴ ng/μL	4 of 4		

* A sample is considered as positive for great crested newt if any of the replicates are positive.

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No decay is expected within time frame of kit preparation, sample collection and analysis.

APPENDIX F – REPTILE SURVEY RESULTS

In addition to the species codes explained in the report the following codes are used in *Table 13*:

Ad - Adult

J – Juvenile

Table 13: Full results of the reptile surveys

	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	Check 7
Date	03/04/17	06/04/17	10/04/17	18/04/17	20/04/17	24/04/17	26/04/17
Reptiles found	0	0	1 Zv (J)	0	0	1 Zv (Ad)	1 Zv (J)
Totals	0	0	1 Zv	0	0	1 Zv	1 Zv

Table 14: Weather conditions during the surveys

Survey Visit	Date	Time	Temp. (Air)	Wind (Beaufort)	Cloud (Octas)	Rain (0 – 5)	Suitable Conditions Yes, No or Fair
1	03/04/17	11:00	16.2	2	3	0	Yes
2	06/04/17	14:30	16	1	2	0	Yes
3	10/04/17	11:10	11.2	4	3	0	Yes
4	18/04/17	12:03	12.2	4	4	0	Fair
5	20/04/17	11:00	13.4	4	6	0	Fair
6	24/04/17	11:00	16	2	8	0	Yes
7	26/04/17	11:00	8.7	5	5	5	Fair